UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2003/00126

March 21, 2003

Roger Williams
Forest Supervisor
Malheur National Forest
P.O. Box 909
John Day, OR 97845

Re: Endangered Species Act Formal Section 7 Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Blue Culvert Projects, Malheur National Forest, Grant County, Oregon

Dear Mr. Williams:

Enclosed is a document prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act that addresses the proposed Blue Culvert Projects, Grant County, Oregon. NOAA Fisheries concludes in this biological opinion (Opinion) that the proposed action is not likely to jeopardize Middle Columbia River (MCR) steelhead (*Onchorynchus mykiss*). This Opinion includes reasonable and prudent measures with terms and conditions that are necessary and appropriate to minimize the potential for incidental take associated with this projects.

This document also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600. The Middle Fork John Day River subbasin has been designated as EFH for chinook salmon (*Onchorynchus tshawytscha*).

If you have any questions regarding this consultation please contact Eric Murray of my staff in the Oregon Habitat Branch, at 541.975.1835 ext. 222.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Larry Bright, MNF
Tim Unterwegner, ODFW

Marisa Meyer, USFWS
John Morris, BLM

Endangered Species Act - Section 7 Consultation
Biological Opinion

&

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Blue Culvert Projects
Galena Watershed
John Day River Basin, Grant County, Oregon

Agency:	USDA Forest Service
Consultation Conducted By:	NOAA's National Marine Fisheries Service, Northwest Region
Date Issued:	March 21, 2003
Issued by:	for Michael R Crouse _____ D. Robert Lohn Regional Administrator
Refer to:	**2003/00126**

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1. INTRODUCTION

1.1 Consultation History

NOAA's National Marine Fisheries Service (NOAA Fisheries) received a letter and an attached biological assessment (BA) on February 13, 2003, from the Malheur National Forest (MNF) requesting formal Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (MSA) consultation on the effects of Blue Culvert Projects on Middle Columbia River (MCR) steelhead (*Oncorhyncus mykiss)*. This proposed project will be carried out in the Middle Fork John Day River (MFJDR) subbasin, located in Grant County, Oregon.

The purpose of the proposed projects is to improve fish passage and decrease sediment inputs to three streams located in the Galena Watershed. These streams, Vinegar, Vincent, and Granite Boulder Creeks, are tributaries to the Middle Fork John Day river, and provide rearing and spawning habitat for the MCR steelhead. This area has also been designated as essential fish habitat (EFH) for chinook salmon (*O. tshawytscha*).

The MNF ESA Section 7 Streamlining Level One Team (Level One Team) participated in the planning process for these projects. On September 18, 2002, the Level One Team visited some of the sites for the proposed projects and discussed design, conservation measures, and best management practices planned for the projects. On November 15, 2002, the Level One Team visited the remaining proposed project sites and gave further recommendations on project designs.

The MCR steelhead was listed under the ESA on March 25, 1999 (64 FR 14517). Protective regulations were issued for MCR steelhead under section 4(d) of the ESA on July 10, 2000 (65 FR 42422).

The objective of the biological opinion contained in this document is to determine whether implementing the activities included in the Blue Culvert Projects is likely to jeopardize the continued existence of MCR steelhead.

The objective of the EFH consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

1.2 Proposed Action

Vincent, Vinegar, and Granite Boulder creeks provide spawning and rearing habitat for the MCR steelhead. Currently, one road crossing on Granite Boulder Creek, two road crossings on Vinegar Creek, two road crossings on Blue Gulch, a tributary to Vinegar Creek, and six road crossings on Vincent Creek are potential fish passage barriers. The MNF is proposing to replace or improve these road crossings to facilitate fish passage and to restore a more natural stream

channel morphology at the crossings. These improvements will also increase the ability of the areas to pass flood flows. Five culverts will be replaced with single span structures (*e.g.* bottomless arches), three culverts will be replaced with low water rock crossings, and three armored drain dips will be installed over existing culverts. The drain dips will be installed upstream of fish-bearing reaches. Table 1 summarizes the proposed actions and locations. The locations and proposed improvements can be found on page 14 of the BA.

Table 1. Proposed Action by Subwatershed

Subwatershed	Replace Culvert with Single Span Structure	Replace Culvert with Engineered Rock Ford	Reinforce Culvert with overflow drain dips
Vinegar Creek	3	0	1
Vincent Creek	1	3	2
Granite Boulder Creek	1	0	0

Existing culverts will be removed using an excavator operating from the existing road. New structures, such bottomless arches, will be aligned with the stream channel profile and will be designed to pass 100-year flow events. Sites will be prepared by widening the location and pouring concrete for new footings. Installation of the new structures will include lining the inlet and outlet catch basins with rock, and stabilizing the fill slope and straw mulch and grass seeding as needed. The proposed structures will be created using natural stream bottom material to mimic natural conditions upstream and downstream of the site. The crossing sites would then be backfilled with material removed from the existing culvert fill. No fish salvage will be necessary for this project.

For sites where culverts will be replaced with rock fords, the existing culverts will be removed using an excavator. Then the crossing area would be widened to pass a 100-year flow event. The approach, streambanks and stream bottom will be armored with grid rolled or pit run rock. The road crossings to be replaced with rock fords are located on closed roads. These roads are only occasionally used by the MNF for fire suppression and administrative purposes, with the volume of traffic on the road being very light.

Armored overflow drainage dips will be created at three existing culverts on Vincent Creek and Blue Gulch. The dips will be installed on the existing road prism using a backhoe. The area will then be hardened using pit run or grid-rolled rock. The dips will capture excess flow during high flow conditions and reduce the chance of road and culvert failure.

These projects have been designed to incorporate all PACFISH (USDA and USDI 1995) standards and guidelines for road management and general riparian area management. These include: (1) Improving and constructing road crossings to pass 100-year flood events; (2) providing and maintaining all fish passage at all road crossings in fish-bearing streams;

(3) trees that must be felled for construction activities for these projects will be left on site to provide future large woody debris; and (4) the storage of fuels and other toxicants will be prohibited in riparian habitat conservation areas (RHCAs).

In addition, the following conservation measures are planned for these projects: (1) Machinery will be operated from the existing road prism; (2) temporary sediment control measures (*e.g.* straw bales and silt fences) will be used to minimize sediment entering streams; (3) excess fill and material will be brought to an upland disposal site; (4) Instream work will be carried out during the ODFW in-water work window (July 15 to August 15 in Granite Boulder Creek, Vinegar Creek, and Blue Gulch; and July 15 to September 15 in Vincent Creek) (ODFW 2000); (5) areas of disturbed streambank will be seeded or planted with native species; (6) existing vegetation will be retained wherever possible; (7) a spill and hazardous substance spill contingency plan will developed and implemented; and (8) a MNF employee qualified in road construction will supervise all construction activities. A list of further conservation measures and best management practices incorporated into the design of these projects can be found on pages 16 and 17 of the BA.

The MNF proposes to monitor fine sediments before and after the proposed actions have been completed using Wolman pebble counts. Photopoints will be created upstream and downstream of the improved road crossings to document streambank, channel, and vegetation conditions before and after project implementation, and during the following year.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information

The MCR steelhead evolutionarily significant unit (ESU) was listed as threatened under the ESA by NOAA Fisheries on March 25, 1999 (64 FR 14517). Protective regulations for MCR steelhead were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). Biological information concerning the MCR steelhead is found in Busby *et al.* (1996). The current status of the MCR steelhead, based upon their risk of extinction, has not significantly improved since the species was listed.

The John Day River (JDR) is the largest river system in the range of MCR steelhead that is free of dams. There is currently no artificial propagation of steelhead in the system, and runs are composed completely of native stocks. However, some hatchery fish stray into the JDR system from the Columbia River (Unterwagner and Gray 1997). The ODFW estimates yearly returns of adult steelhead to the JDR basin from 3,900 to 36,400, with estimated escapement averaging 13,988 adults since 1987. NOAA Fisheries (1997) citing Chilcote (1997), states that recent MCR steelhead redd counts conducted in established index areas throughout the JDR basin

suggest universal declines in redd abundance ranging from -0.9 to -5.6% over the past several years.

The JDR and its tributaries, including the MFJDR subbasin streams, provide spawning, rearing, and migratory habitat for both adult and juvenile life stages of MCR steelhead. Adult MCR steelhead enter the Columbia River beginning in the spring and migrate upriver through the summer, fall, and winter, seeking their tributary of origin. By early the following spring, the adults have reached their natal streams and spawn in gravel redds/nests from March to early June. Deposited eggs usually hatch by the July of the same year. The resulting juveniles will spend from one to four years rearing to smolt size, at which time they will begin their migration to the ocean. Juvenile steelhead are expected to be rearing in the project areas during all phases of these projects.

Essential features of the adult spawning, juvenile rearing, and adult and migratory habitat for this species are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions. (Bjornn and Reiser, 1991; NOAA Fisheries, 1996b; Spence *et al.*, 1996). The essential features that the proposed projects may affect are: Substrate, water quality, water temperature, water velocity, cover/shelter, food, and riparian vegetation.

2.1.2 Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps: (1) Consider the status and biological requirements of the species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species; (4) consider cumulative effects; and (5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species' survival in the wild or adversely modify its critical habitat. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with all cumulative effects when added to the environmental baseline, is likely to jeopardize the continued existence of the ESA-listed species, or result in the destruction or adverse modification of their critical habitat, or both. If NOAA Fisheries finds that the action is likely to jeopardize the ESA-listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

Step 5 of this analysis ultimately requires that NOAA Fisheries determine whether the species-level biological requirements can be met considering the significance of the effects of the action under consultation. Recovery planning can provide the best guidance for making this determination. The 1995 FCRPS biological opinion stated:

> Recovery plans for listed salmon call for measures in each life stage that are based upon the best available scientific information concerning the listed species'

> biological requirements for survival and recovery. As the statutory goal of the recovery plan is for the species' conservation and survival it necessarily must add these life-stage specific measures together to result in the survival of the species, at least, and its recovery and delisting at most. For this reason, the Recovery Plan is the best source for measures and requirements necessary in each life stage to meet the biological requirements of the species across its life cycle (p.14).

Recovery planning will identify the feasible measures that are needed in each stage of the salmonid life cycle for conservation and survival within a reasonable time. Measures are feasible if they are expected both to be implemented and to result in the required biological benefit. A time period for recovery is reasonable depending on the time requirements for implementation of the measures and the confidence in the survival of the species while the plan is implemented. The plan must demonstrate the feasibility of its measures, the reasonableness of its time requirements, and how the elements are likely to achieve the conservation and survival of the listed species based on the best science available.

NOAA Fisheries has developed guidelines for basin-level, multispecies recovery planning on which individual, species-specific recovery plans can be founded. "Basin-level" encompasses habitat, harvest, hatcheries, and hydro. The recovery planning analysis is contained in the document entitled "Conservation of Columbia Basin Fish: Final Basinwide Salmon Recovery Strategy" (hereafter, the Basinwide Recovery Strategy [Federal Caucus 2000]). The Basinwide Recovery Strategy will be used to guide recovery planing for MCR steelhead. The recovery plan will provide the particular statutorily required elements of recovery goals, criteria, management actions, and time estimates that are not developed in the Basinwide Recovery Strategy.

Among other things, the Basinwide Recovery Strategy calls for restoration of degraded habitats on a priority basis to produce significant measurable benefits for listed anadromous and resident fish. Immediate and long-term priorities for restoration measures relevant to this consultation include the following general habitat improvements for tributary reaches:

- Restoring tributary flows.
- Addressing passage obstructions.
- Protecting the currently productive habitat.
- Increasing the amount of habitat.
- Improve water quality.

The Basinwide Recovery Strategy also established these specific habitat improvement action priorities for the JDR basin:

- Fix flow, screening and passage problems in priority subbasins,...in the...JDR Basin.

Until the species-specific recovery plans are developed, the Basinwide Recovery Strategy provides the best guidance for judging the significance of an individual action relative to the species-level biological requirements. In the absence of completed recovery planning, NOAA

Fisheries strives to ascribe the appropriate significance to actions to the extent available information allows. Where information is not available on the recovery needs of the species, either through recovery planning or otherwise, NOAA Fisheries applies a rational substitute that approximates what would be expected of an action if such information were available.

2.1.3 Biological Requirements

The first step in the methods the NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed MCR steelhead is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list MCR steelhead for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for MCR steelhead to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing.

MCR steelhead survival in the wild depends on the proper functioning of certain ecosystem processes including habitat formation and maintenance. The restoration of improperly functioning habitat to a more properly functioning condition will likely lead to improved survival and recovery of MCR steelhead. In conducting analyses of habitat altering actions, NOAA Fisheries defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat" approach to its analysis (NOAA Fisheries 1999). The current status of MCR steelhead, based on their risk of extinction, has not improved much since the species was listed

2.1.4 Environmental Baseline

The current range-wide status of the MCR steelhead is found in Busby *et al.* (1995, 1996). The identified action will occur within the range of MCR steelhead. The defined action area is the area that is directly and indirectly affected by the proposed action. The direct effects occur at the project sites and may extend upstream or downstream based on the potential for impairing fish passage, stream hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed, where actions described in this Opinion lead to additional activities, or affect ecological functions, thereby contributing to stream degradation. As such, the action area for the proposed activities includes the immediate portions of the watersheds containing the projects, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term, by the proposed projects. For

these projects, the action area would be the Vinegar, Vincent, and Granite Boulder Creek subwatersheds of the Galena watershed.

Environmental baseline conditions within the action area were evaluated for the subject actions at the project level and watershed scales. The results of this evaluation, based on the "Matrix of Pathways and Indicators" (MPI) described in *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NOAA Fisheries 1996a), follow. This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species. For the proposed action, the MPI evaluation was based on habitat conditions of the MFJDR subbasin. More specific information on environmental baseline conditions for the Vinegar, Vincent, and Granite Boulder Creek subwatersheds are also described in the BA.

For the MFJDR subbasin, no habitat indicators were rated as "functioning properly." Twelve habitat indicators were rated as "functioning at risk" and include: Sediment, chemical contaminants/nutrients, large woody debris, off-channel habitat, refugia, width/ depth ratio, streambank condition, floodplain connectivity, change in peak/base flow, drainage network increase, disturbance history, and riparian conservation areas. Six habitat indicators were rated as "not properly functioning" and include: Temperature, physical barriers, substrate embeddedness, pool frequency/quality, large pools, and road density and location.

The MFJDR is listed under Clean Water Act (CWA) section 303(d) for water quality concerns, with temperature and flow modification being the parameters of concern. The ODFW conducted habitat surveys in 1992 and 1996, on accessible portions of the MFJDR. Much of the river is on private land and was not surveyed. Stream temperatures ranged from 52-72° F in August and September. Pool frequency ranged from 1.72 to 5.80 pools per mile and pool spacing ranged from 9 to 28.5 channel widths. Pools greater than three feet deep were scarce, and ranged from 0.13 to 2.28 per mile. Bank damage was evident in many areas with unstable banks occurring in 10 to 32% of bank totals. Much of the riparian areas in the middle reaches of the MFJDR were cleared for agriculture purposes and therefore, shade and large woody debris are lacking. ODFW habitat surveys indicated shade to be 18 to 42%. Large woody debris ranged from 3.2 to 9.6 pieces per mile.

Vinegar Creek and its surrounding riparian area were extensively mined, logged, and grazed by livestock in the past. Consequently, habitat conditions for MCR steelhead in this creek are generally poor. Results from 1991 and 2000 MNF habitat surveys indicate the channel of Vinegar Creek is incised and is disconnected from its floodplain in many areas. Shade from hardwood shrubs is inadequate to maintain temperatures ideal for MCR steelhead. Vinegar Creek is listed on the Oregon CWA 303(d) list for temperature. Sediment was found to be excessive in all reaches. Results from these habitat surveys did, however, indicate that recovery in many areas is occurring. Changes in peak/base flows have resulted in some sections of this creek experiencing very low or no flows during the late summer.

Vincent Creek and its riparian areas were also mined, grazed, and logged during the past 150 years. Habitat conditions are generally poor for MCR steelhead. MNF habitat surveys indicate summer temperatures range from 59 to 71.4° F. Stream sediment was found to be excessive in all reaches. Instream woody debris counts varied widely, ranging from 0.0 to 91.6 pieces per mile. Pools per mile ranged from 45 to 96.6. There are several localized areas of Vincent Creek that have been degraded by past mining practices. Changes in peak/base flows have resulted in some sections of this creek experiencing very low or no flows during the late summer.

Habitat conditions in Granite Boulder Creek are considerably better than those in Vinegar and Vincent creeks. Canopy cover is largely intact, with healthy communities of riparian hardwoods in most areas. Substrates are relatively free of fine sediments and temperatures are ideal for MCR steelhead spawning and rearing. Much of Granite Boulder Creek and its riparian areas have been protected from impacts of livestock grazing by fences.

There are several ongoing activities carried out or administered by the MNF in the project areas. These include road maintenance, administration of recreation activities (*e.g.* camping and hunting), reforestation and thinning, and prescribed burning and fuels treatments. NOAA Fisheries has concurred that recently proposed activities are "not likely to adversely affect" MCR steelhead (refer to: OHB2001-0208-IEC, 2002/00420, and 2002/00511). Livestock grazing is permitted by the MNF, and occurs in the project areas on a yearly basis. NOAA Fisheries consults each year on Federally-permitted livestock grazing in this area (refer to 2002/00510 for 2002 consultation), and will continue to do so in the future. Any impacts that are associated with these activities are considered as part of the environmental baseline for the action area.

2.1.5 Effects of Proposed Action

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in *Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale* (NOAA Fisheries 1996a). The effects of actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the action area.

Potential short-term negative effects to MCR steelhead will result from these projects. Increased sediment levels and turbidity can be expected to occur due to the instream work. Although sediment control measures will be used, they will not be able to prevent all fine sediment from entering the streams. Short-term increases in turbidity could result in temporary reduction in feeding efficiency for juvenile steelhead within the action areas. The construction activities could also result in harassment of juvenile steelhead, because this work could interrupt daily activities such as sheltering. Isolation of the work areas will cause rearing juvenile MCR steelhead to leave the construction area. Once these juvenile fish are frightened from cover and swim into open water, they become more susceptible to predation from larger fish and avian

predators. Increased sedimentation may also lead to increased embeddness of spawning substrates downstream of the projects.

Instream work scheduled for these projects will take place during the ODFW in-water window for the area (July 15 - August 15 or July 15 - September 15). Due to the typically low flows present in the individual project areas during this time, mobilization of sediment is expected to be minimal. In fact, during much of the in-water work window for 2002, portions of Vinegar and Vincent creeks were completely dry. The road fill material covering the existing culverts is minimal, and much of the stream substrate in the project areas is coarse, composed of cobbles and boulders. For these reasons, any adverse effects form the proposed action due to increases in fine sediment are expected to be minimal.

Minor disturbance of riparian vegetation could result from operation of heavy machinery near the stream and could lead to decreased shade, increased water temperatures, and decreased streambank stability until riparian vegetation is re-established. However, heavy machinery will be operating from existing roads, so the amount of riparian vegetation that needs to be removed will be very minimal.

There is also the potential for fuel or other contaminant spills associated with use of heavy equipment in or near the stream. As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. These substances are highly toxic to aquatic life, and can cause death or injury to fish, as well as adverse sublethal effects to salmonids (Arkoosh *et. al.* 1991). Operation of the back-hoes, excavators, and other equipment requires the use of fuel, lubricants, *etc.*, which, if spilled into the channel of a water body or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985). Similarly, exposure to herbicides can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non target riparian vegetation (Spence *et al.* 1996).

Excavation in the stream channel associated with the culvert work will elevate the risk for chemical contamination of the aquatic environment within the action area. Because the potential for chemical contamination should be localized and brief, the probability of direct mortality is negligible. In-water work timing during the preferred in-water work timing period and work area isolation will minimize the risk from chemical contamination during in-water work activities. The contractor would also be required to develop, implement and monitor a site specific pollution control plan in an effort to further minimize risk to the aquatic environment.

An interrelated effect of replacing some of the existing culverts with fords is the potential for vehicles to crush rearing juvenile MCR steelhead. However, the chance of this happening is minimal because rearing MCR steelhead do not prefer the shallow riffle-type habitat that these fords provide. In addition, the volume of traffic on these closed roads is very light due to the fact the MNF uses them only during fire suppression and other administrative tasks.

Several beneficial effects will result from the proposed action. Fish passage for all life stages will be improved in Vincent, Vinegar, and Granite Boulder Creeks and Blue Gulch. Spawning habitat that may have been unavailable upstream of these culverts will now be available to adult MCR steelhead. Juvenile smolts will be able to complete their migration to the MFJDR more easily, and rearing juvenile MCR steelhead seeking the cooler headwater areas in the summer will more easily be able to reach these areas. Sediment inputs to these streams will be reduced in the long term by improving these road crossings, and the chance of road and culvert failure will be reduced by sizing these structures to pass 100-year flow events.

Due to the proposed conservation measures contained within the project designs, all relevant habitat indicators in the project areas will be maintained in the long term. Sediment, substrate embeddedness, and physical barrier indicators will be improved by the proposed action.

2.1.6 Cumulative Effects

"Cumulative effects" are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation. The "action area" is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The "action area" for this consultation is the Vinegar, Vincent, and Granite Boulder Creek subwatersheds of the Galena watershed located in the MFJDR subbasin.

There are several actions occurring on private land in these subbasins that are reasonably certain to continue in the future. These include ranching, timber harvest, and withdrawal of water for irrigation.

Significant improvement in MCR steelhead reproductive success outside of Federally-administered land is unlikely without changes in grazing, agricultural, and other practices occurring within these non-Federal riparian areas in the JDR basin. Improvements to irrigation diversions to improve fish passage is occurring at several locations on private land within the JDR basin. NOAA Fisheries is not aware of any other specific future actions which are reasonably certain to occur on non-Federal lands.

2.1.7 Conclusion

NOAA Fisheries has determined that, when the effects of the subject actions addressed in this Opinion are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of MCR steelhead. NOAA Fisheries believes that the proposed actions will cause some short-term increases in stream turbidity and sedimentation rates in the subwatersheds located in the action area. It is also possible that some direct mortality and harassment of juvenile steelhead may result from the instream work and crossing of streams by vehicles. Because of the conservation measures

incorporated into these activities and included in the BA, the amount of take is expected to be minimal.

The proposed action is consistent with road management standards and guideline found in PACFISH. Specifically, road management standard and guideline RF-3 directs Federal land management agencies to reconstruct road and drainage features that have been shown to contribute sediment to streams or retard the attainment of Riparian Management Objectives (RMOs). Standard and guideline RF-4 and RF-5 direct the Federal land management agencies to construct new and improve existing stream crossing structures to pass 100-year flow events and maintain fish passage. The proposed action will reduce sediment inputs in the long term and improve fish passage, thus it is consistent with these relevant standards and guidelines.

The proposed action is also consistent with restoration objectives identified in the Basinwide Recovery Strategy. Replacing culverts will improve fish passage in the Vinegar, Vincent, and Granite Boulder Creek subwatersheds.

These conclusions were reached primarily because the proposed actions are expected to reduce chronic sediment inputs in the long term, improve fish passage in the action area, and maintain the current condition of all other relevant habitat indicators, are planned in accordance with all relevant PACFISH standards and guidelines, and are not expected to impair currently properly functioning habitats, appreciably reduce the functioning of already impaired habitats, or retard the long-term progress of impaired habitats toward proper functioning condition essential to the long-term survival and recovery at the population or ESU scale.

2.1.8 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of proposed actions on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. NOAA Fisheries believes that the following conservation recommendations regarding the Blue Culvert Projects should be implemented.

1. Consider restoration projects for the areas of Vinegar and Vincent Creeks adversely affected by past mining practices. Removing mine tailing piles will allow stream channels to become reconnected to their floodplains and allow for re-establishment of riparian plant communities in these areas

2. Carry out planting and other habitat projects to improve the hardwood plant communities in the riparian areas of Vinegar and Vincent Creeks. Fencing of low gradient stream channel segments (stringer meadows) will reduce livestock and wildlife use of hardwoods and offer these plant communities an opportunity to recover from past disturbances.

3. Continue the protective measures that have preserved properly functioning habitat conditions in Granite Boulder Creek. This can be accomplished by maintaining fences excluding livestock from the riparian areas of Granite Boulder Creek. Additionally, the MNF should consider closing this area to further mineral entry.

In order for NOAA Fisheries to be kept informed of actions minimizing or avoiding adverse effects, or those that benefit listed salmon and steelhead or their habitats, we request notification of the achievement of any conservation recommendations when the MNF submits its annual report describing achievements of the fish monitoring program during the previous year.

2.1.9 Reinitiation of Consultation

Reinitiation of consultation is required if: (1) The action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Opinion; (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; (3) a new species is listed or critical habitat is designated that may be affected by the action; or (4) if the amount or extent of take specified in the incidental take statement is exceeded or expected to be exceeded. (50 CFR. 402.16). The MNF may also be required to reinitiate consultation if the proposed actions are not consistent with conservation measures developed through the pending consultation on land and resource management plans for Federal land management units in the Middle and Upper Columbia River basins.

2.2 Incidental Take Statement

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the proposed actions are reasonably certain to result in incidental take of species listed in this Opinion because of detrimental effects from increased sediment levels (non-lethal), increased pollutant levels (potentially lethal), and limited riparian habitat disturbance (non-lethal). It is also likely that some incidental take may result from the instream work and vehicle and machinery crossing streams (lethal), although this is expected to be minimal.

Effects of actions such as minor sedimentation and minor riparian disturbance are unquantifiable in the short term, and are not expected to be measurable as long-term harm to habitat features or by long-term harm to salmonid behavior or population levels. Therefore, even though NOAA Fisheries expects some low level incidental take to occur due to the proposed actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate the specific amount of incidental take to the species itself. In instances such as these, NOAA Fisheries designates the expected level of take as "unquantifiable." Based on the information in the BA, NOAA Fisheries anticipates that an unquantifiable amount of incidental take could occur as a result of the habitat altering actions covered by the Opinion. The extent of the take includes the aquatic and associated riparian habitats affected by the culvert replacements and stream crossing improvement, extending upstream to the edge of disturbance, and downstream 300 feet.

2.2.2 Effect of Take

In this Opinion, NOAA Fisheries determines that this level of anticipated take is not likely to result in jeopardy to MCR steelhead.

2.2.3 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species. The MNF shall:

1. Minimize the likelihood of incidental take resulting from activities proposed in the Blue Culvert Projects such that the adverse effects of construction activities and in-channel disturbance on spawning adult MCR steelhead, steelhead eggs, pre-emergent fry, and rearing juveniles are avoided or minimized.

2. Complete a comprehensive monitoring and reporting program to ensure implementation of requirements found in this Opinion.

2.2.4 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the MNF must comply with the following terms and conditions which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. To implement reasonable and prudent measure #1 (heavy equipment and in-channel disturbance), the MNF shall ensure that:

    a. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the projects.
    b. Work period extensions. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark, must be approved by biologists from NOAA Fisheries. In-water work periods for the projects are July 15 to August 15 for Vinegar and Granite Boulder Creek subwatersheds and July 15 to September 15 for Vincent Creek subwatershed.
    c. Fish passage. Work will not inhibit passage of any adult or juvenile salmonid species throughout the construction period or after the projects are completed, although isolation of in-water work area, if necessary, may result in a short-term blockage of fish passage (*i.e.,* one week). Channel modifications which could adversely affect fish passage, including through increasing water velocities, are not authorized by this Opinion.
    d. Cessation of work. All project operations, except efforts to minimize storm or high flow erosion, will cease under high flow conditions that may result in inundation of a project area.
    e. Pre-construction activities. Before significant alteration of the action area, the following actions will be accomplished:
        i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
        ii. The following erosion control materials will be onsite:
            (1) A supply of erosion control materials (*e.g.*, silt fence, straw bales) must be on hand to respond to sediment emergencies. Weed-free straw or hay bales will be used when available to prevent introduction of weeds.
            (2) An oil-absorbing, floating boom is available on-site during all phases of construction whenever surface water is present.
        iii. All temporary erosion controls (*e.g.*, straw bales, silt fences) are in place and appropriately installed downslope of project activities within the riparian area prior to and during all project activities. Effective erosion control measures will be in place whenever possible during the proposed

activities, and will remain and be maintained until permanent erosion control measures are effective.

f. Heavy Equipment. Heavy equipment use will be restricted as follows:
   i. When heavy equipment is required, the MNF will use equipment having the least impact.
   ii. Excavators will have properly guarded belly pan for pioneering type of work in rough terrain.
   iii. Heavy equipment will be fueled, maintained and stored as follows:
      (1) All equipment that is used for instream work will be cleaned before operations below the bankfull elevation. External oil and grease will be removed, along with dirt and mud. No untreated wash and rinse water will be discharged into streams and rivers without adequate treatment.
      (2) Vehicle maintenance, refueling, and fuel storage areas will be located outside RHCAs.
      (3) All vehicles operated within RHCAs of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.
      (4) When not in use, vehicles will be stored in the vehicle staging area outside of RCHAs. If relocating heavy equipment to staging areas daily will create additional riparian disturbance, staging in RHCAs can occur.

g. Site preparation. Site preparation is completed in the following manner, including removal of stream materials, topsoil, surface vegetation and major root systems.
   i. Any instream large wood or riparian vegetation moved or altered during construction will stay on the site or be replaced with a functional equivalent.
   ii. Tree or riparian shrub removal occurring at in-channel treatment and stream crossing improvement work sites will be mitigated for onsite by a 2:1 replanting ratio.
   iii. Whenever a project area is to be revegetated or restored, native channel material, topsoil and native vegetation removed for a project should be stockpiled for redistribution on that project area.
   iv. Vegetation removal will occur by hand wherever practical, leaving rootwads intact and cutting vegetation at ground level to promote resprouting wherever practical.

h. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, associated with the in-channel treatment and stream crossing improvement work is completed in the following manner:
   i. Additional boulders, rock, woody materials and other natural construction materials used for the fish habitat improvements or stream crossing improvements must be obtained from outside the riparian area.

ii. Channel material and topsoil that cannot be used for restoration efforts will be placed in an upland location where it cannot enter streams or other waterbodies.

iii. All exposed or disturbed areas will be stabilized to prevent erosion and replanted with native vegetation.

(1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,[1] mulching, and placement of erosion control blankets and mats, if applicable, as quickly after exposure as possible..

(2) All other areas will be stabilized as quickly as reasonable, but within 14 days of exposure.

(3) Seeding outside the growing season will not be considered adequate nor permanent stabilization.

iv. All erosion control devices will be inspected during construction to ensure that they are working adequately.

(1) Erosion control devices will be routinely inspected to ensure proper function.

(2) If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, to make repairs, install replacements, or install additional controls as necessary.

v. If soil erosion and sediment resulting from construction activities is not effectively controlled, work will cease until protective measures can be implemented. The engineer will limit the amount of disturbed area to that which can be adequately controlled.

vi. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug five inches (12 cm)into the ground. Catch basins will be maintained so that no more than six inches (15 cm) of sediment depth accumulates within traps or sumps.

i. Site restoration. Site restoration and cleanup, including protection of bare earth by seeding, planting, mulching and fertilizing, is done in the following manner:

i. All areas damaged by the construction activities will be restored to pre-work conditions including restoration of original streambank lines and contours.

ii. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with native herbaceous seeding, and native woody vegetation as soon as possible during the appropriate planting season (immediately for seeding and the following fall or spring for woody plantings). On cut slopes steeper than 1:2, a tackified seed mulch will be used so that the seed does not wash

[1] By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

away before germination and rooting occurs. In steep locations, consider using hydro-mulch applied at 1.5 times the normal rate.

iii. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region where the project occurs, and will comprise a diverse assemblage of woody and herbaceous species.

iv. Plantings will be arranged in a variable spacing pattern to be determined by a MNF fish biologist.

v. All plantings and seeding will be completed before July 1 of the following year.

vi. No herbicide application will occur within RHCAs as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is allowed.

vii. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this allowed action.

viii. Plantings in areas disturbed by construction activities will achieve an 80% survival success after three years.

(1) If success standard has not been achieved after three years, the MNF will develop an alternative plan, address temporal loss of function and remedy the issue.

(2) Plant establishment monitoring will continue and plans will be submitted to NOAA Fisheries until site restoration success has been achieved.

j. Fords. Design fords in the following manner:

i. Approaches to fords will be constructed and armored in a manner to avoid the formation of deep ruts that may attract and trap rearing MCR steelhead. These steelhead would then be susceptible to injury or death when vehicles use the fords.

ii. Design stream crossings to be consistent with NOAA Fisheries draft Anadromous Salmonid Passage Facility Guidelines and Criteria. Available at: (http://www.nwr.noaa.gov/1hydrop/hydroweb/docs/release_draft.pdf)

k. MNF personnel. A MNF Fish/Hydrology staff member will be on-site for all inchannel treatment and stream crossing improvement work and related monitoring activities to ensure that these terms and conditions are met.

l. Pollution and Erosion Control. The MNF shall ensure that a pollution and erosion control plan (PECP) will be developed for each authorized project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.

i. Methods that will be used to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.

ii. Methods that will be used to confine and remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.
iii. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.
iv. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.
v. Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.

2. To implement reasonable and prudent measure #2 (monitoring and reporting), the MNF shall submit a report by March 1 of the following year to NOAA Fisheris describing the previous year's activities related to these projects. This report will consist of the following information:

a. Project identification.
   i. Project name,
   ii. Project location by 5th field hydrological unit code (HUC) and lat long,
   iii. Starting and ending dates for work completed, and
   iv. The MNF contact person.
b. Isolation of in-water work area. Each project involving isolation of in-water work areas must include a report with the following information:
   i. The name and address of the MNF fish biologist in charge of the project,
   ii. Methods used to isolate the work area and minimize disturbances to ESA-listed species, and
   iii. Stream conditions before and following placement and removal of barriers.
c. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
d. Site restoration. Summary of the following conditions:
   i. Log and rock structure repair,
   ii. Planting composition and density,
   iii. Summary of planting and seeding efforts, and
   iv. A narrative assessment of the project's effects on natural stream function.

e. The annual report will be submitted to:

Branch Chief - Portland
NOAA Fisheries
Attn: 2003/00126
525 NE Oregon Street, Suite 500
Portland, OR 97232

f. NOTICE. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the:

NOAA Fisheries Law Enforcement Office
Vancouver Field Office
600 Maritime, Suite 130
Vancouver, WA 98661
phone: 360.418.4246

Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. Besides the care of sick or injured endangered and threatened species, or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence with the specimen is not unnecessarily disturbed.

3. MAGNUSON-STEVENS ACT

3.1 Magnuson-Stevens Fishery Conservation and Management Act

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of EFH: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reason for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of their location.

3.2 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O.gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.3 Proposed Actions

The proposed action is detailed above in section 1.2 of this document. The action area includes the Galena watershed located in the MFJDR subbasin. This area has been designated as EFH for various life stages of chinook salmon.

3.4 Effects of Proposed Action

As described in detail in the ESA portion of this consultation, the proposed activities would result in detrimental, short-term, adverse effects to a variety of habitat parameters.

3.5 Conclusion

NOAA Fisheries believes that the proposed action will adversely affect the EFH for chinook salmon.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. In addition to conservation measures proposed for the project by the MNF, all of the reasonable and prudent measures and the terms and conditions contained in sections 2.2.3 and 2.2.4, respectively, of the ESA portion of this Opinion are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.7 Statutory Response Requirement

The MSA (section 305(b)) and 50 CFR 600.920(j) requires the MNF to provide a written response to NOAA Fisheries' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. If the response is inconsistent with NOAA Fisheries' conservation recommendations, the reasons for not implementing the MNF shall explain its reasons for not following the recommendations.

3.8 Supplemental Consultation

The MNF must reinitiate EFH consultation with NOAA Fisheries if either the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion in addition to the BA and additional information requested by NOAA Fisheries and provided by the MNF.

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